GOVERNMENT OF INDIA
SCIENCE AND TECHNOLOGY
LOK SABHA

UNSTARRED QUESTION NO:1244
ANSWERED ON:26.11.2002
DEVELOPMENT OF A NEW SUPER COMPUTER
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Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) Whether India has developed a new super computer for speedy solution of computer related problems in various areas like scientific research and nuclear explosions; and

(b) if so, the details thereof, indicating salient features of this computer?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF SCIENCE AND TECHNOLOGY (SHRI BACHI SINGH RAWAT)

(a) & (b): A statement is attached.

STATEMENT AS REFERRED IN REPLY TO PARTS (a) & (b) OF THE LOK SABHA UNSTARRED Q.NO. 1244 DUE ANSWER ON 26.11.2002 REGARDING `DEVELOPMENT OF A NEW SUPER COMPUTER`.

Centre for Development of Advanced Computing (C-DAC) an autonomous scientific society of the Department of Information Technology, Government of India, has been for over a decade engaged in developing high performance computing systems (Supercomputers) with the brand name of PARAM. It has brought out three generations of systems, PARAM 8000, 9000 and 10,000 and has supplied large number of them to institutions in India and abroad. C-DAC has recently completed development of a new supercomputer PARAM Padma, a system with one Teraflop of peak computing power and 10 terabytes of aggregate storage. The system is designed to solving compute and data intensive scientific and engineering and business computing problems and aid in associated research requiring high end computing platforms. Currently the application of weather forecasting, molecular modeling, genomic sequencing, seismic data processing, structural mechanics are ported on the system. The technical specifications of t! he systems are enclosed at Annexure `A`.

Department of Atomic Energy and Defence Research and Development Organisation (DRDO) have also developed indegenous Supercomputing capabilities to cater to their own in-house requirements.

ANNEXURE `A` AS REFERRED IN REPLY TO PART (b) OF THE LOK SABHA UNSTARRED Q.NO. 1244 DUE FOR ANS ON 26.11.2002 REGARDING `DEVELOPMENT OF A NEW SUPER COMPUTER`.

PARAM Padma: One TF Cluster Configuration Specifications

1. Computer Nodes:

- Configuration : 54 Nos. of 4 way SMP
+ 1 No. of 32 way SMP
- No. of Processors : 248 (Power 4)
- Aggregate Memory : 0.5 Terabytes
- Internal Storage : 4.5 Terabytes
- Operating System : AIX 5L/LINUX (SuSe)
- Aggregate Peak. : 1005 GFs (-1 TF)
Computing Power

2. File Servers:

- Configuration : 6 Nos. of 4 Way SMP
- No. of Processors : 24 (Ultraspare-III)
- Aggregate Memory : 96 Gigabytes
- Internal Storage : 0.4 Terabytes
- File System : QFS
- Operating System : Solaris 9

3. Networks:

- Primary : PARAMNet-II @ 2.5 Gbps Full Duplex
- Backup : Gigabit Ethernet @ 1 Gbps Full Duplex

4. External Storage:

- Storage Army : 5 Terabytes
-Tape Library : 10 Terabytes

5. System Software : C-DAC`s HPCC Suite of System Software including

(i) C-MPI

(ii) DIViA

(iii) KBHIPRA

(iv) F90IDE

(v) METRIC ADVISOR

(vi) PARMON

(vii) PCF90

(viii) C-PFS
(ix) RMS

6. Mechanical : No. of Racks: 15
(8: Compute Nodes + 2: File Servers)
3: Networks + 2: Storage)

7. Total Weight : 9 Tons

8. Total Power : 160 KVA

UPS : 2 220KVA

DG Set : 500 KVA

Battery BackUp : 30 Minutes

9. Cabling :
(i) Networks: 12Kms (CAT6) + 2.5 Kms(Fibre Optic)

(ii) Power: 5.5Kms

10. Air Conditioning : 110 Tons

11. Temperature : 18 Degree Celsius

12. Total Machine Floor : 168 Sq. metre (1800 sq. ft.)

Area